Rhode Island Department of Health

Cancer Control Program

Colorectal Cancer Mortality in Rhode Island

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Published in: "Health by Numbers," *Rhode Island Medicine*, 1995;78(6)
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Differences across nations in colorectal cancer mortality are strongly related to differences in diet. Nations in whose diets complex carbohydrates contribute a large majority of calories have very low colorectal cancer mortality; nations in which complex carbohydrates are supplanted by fats have high colorectal mortality. Even though supporting data from clinical trials are not presently available, the ecological relation between diet and colorectal cancer is so strong that the American Cancer Society and the National Cancer Institute both recommend modifications in the American diet to reduce the proportion of calories from fat. The Rhode Island Department of Health (the Department) has selected two related Year 2000 health objectives[1] to guide public health interventions in this area,

- "Increase healthy diet, by reducing dietary fat intake to 30% of calories or less and saturated fat intake to less than 10% of calories among 60% of people aged 2 and older. (Healthy People 2000, Objective 2.5)," and
- "Increase healthy diet, by increasing complex carbohydrates and fiber-containing foods in the diets of 60% of adults to 5 or more servings of vegetables (including legumes) and fruits, and to 6 or more daily servings for grain products. (Healthy People 2000, Objective 2.6),"

and has established a "Five a Day for Better Health" program, promoting increased dietary consumption of fruits and vegetables.

As part of the effort to monitor Year 2000 health objectives for the State, the Department has examined colorectal cancer mortality statistics in Rhode Island and in the U.S. as a whole.

Methods

Mortality rates for whites, 1950-1989, were extracted from official publications of the U.S. government.[2,3] Rhode Island mortality rates for the period 1980-1989 were constructed from Rhode Island vital records, using U.S. census data for 1980 and 1990. All rates were age-standardized using the 1970 population of the U.S. as the standard population. Rhode Island mortality rates for African-Americans, based on few deaths, are associated with large standard errors. These rates should be interpreted with due caution.

Observations

Mortality from colorectal cancer among whites declined steadily over 40 years of observation (Table 1). The decline was proportionately greater among females (R.I.: 35%; U.S.: 28%) than males (R.I.: 11%; U.S.: 5%). Colorectal cancer mortality was higher among males than females throughout the period of observation in both geographical areas. Mortality from colorectal cancer among whites of both genders was substantially higher in Rhode Island than the U.S. as a whole. This difference diminished over time, however, from 43% to 34% among males, and from 33% to 21% among females (Table 1).

Table 1. Death rates, colorectal cancer, whites, 1950-1989, Rhode Island and the U.S., by sex and decade

Sex/Decade	RI	US	RI/US
Males			
1950s	37.3	26.1	1.43
1960s	37.3	25.8	1.45
1970s	35.8	25.8	1.39
1980s	33.2	24.8	1.34
Females			
1950s	32.0	24.0	1.33
1960s	28.6	21.7	1.32
1970s	26.6	19.8	1.34
1980s	20.8	17.2	1.21

Note: Rates are average annual, age-standardized, using the 1970 U.S. population as standard, expressed as deaths per 100,000 population.

In the U.S. as a whole, African Americans had higher colrectal cancer mortality than whites in the 1980s (Table 2). The same relation is observed among Rhode Island females of different races. The opposite relation is observed among Rhode Island males. However, the racial differentials observed in Rhode Island are not statistically significant. Mortality was higher in Rhode Island than the U.S. as a whole across all race-gender combinations.

Table 2. Death rates, colorectal cancer, 1980-1989, Rhode Island and the U.S., by sex and race

Sex/Race	RI	US	RI/US
Males			
Whites	33.2	24.8	1.34
African Americans	29.1	27.0	1.08
Females			
Whites	20.8	17.2	1.21
African Americans	25.3	20.7	1.22

Note: Rates are average annual, age-standardized, using the 1970 U.S. population as standard, expressed as deaths per 100,000 population.

Discussion

The decline in colorectal cancer mortality observed in Rhode Island and the U.S. since the 1950s is most likely the result of improved case finding and treatment. Tumors have been detected earlier, and improvements in surgery have allowed a higher proportion of tumors to be treated successfully, especially among the elderly.[3] The American diet also improved slightly in the 1980s, and possibly as a result, the incidence of colorectal cancer in the U.S. began declining in 1986.[3] Although these trends cannot explain a decline in mortality that began in the 1960s, they may fuel further mortality reductions, if dietary change can be maintained and accelerated through public health interventions such as "Five a Day for Better Health."

References

1. Rhode Island Department of Health. *Healthy Rhode Islanders 2000*. Providence, RI: Rhode Island Department of Health, 1993.

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3. Miller BA, Gloeckler Ries LA, Hankey BF, *et al*. *SEER cancer statistics review 1973-1990*. NIH Publication No. 93-2789. Bethesda, MD: National Cancer Institute, 1993.